PROCEEDINGS OF THE
ROYAL ENTOMOLOGICAL SOCIETY
OF LONDON

SERIES C. JOURNAL OF MEETINGS

VOLUME 22 No. 4, 1957

ORDINARY MEETING.

WEDNESDAY, 5th JUNE, 1957, at 5.30 p.m.

AGENDA.

1. Confirmation of the Proceedings of the Ordinary Meeting held on 1st May, 1957.

2. Recommendations of candidates for Fellowship. First reading.

3. Recommendations of candidates for Fellowship. Second reading.

4. Announcement of election of new Fellows.

5. Additions to the Library [see p. 21].

6. Admission of Fellows.

7. Exhibits.

Fellows are particularly requested to bring suitable exhibits to the Meeting even though it may not be possible to announce their intention to do so beforehand.

> *Note.*—To avoid congestion in the Library and to enable exhibits to be displayed to greater advantage, a table has been placed in the meeting-room for this purpose. Fellows are asked to place their exhibits on this table, with a suitable explanatory note, as soon as possible on the afternoon of the meeting, so that they are available for inspection there before the meeting opens.

8. Communications.

Dr. H. E. Hinton.

The function of the tissue isolated in the pupal gill of a Tipulid at the pupa-adult moult.

[ABSTRACT].

At the pupa-adult moult the epidermis and blood in the spiracular gill of the pupa are completely isolated from the living insect by two cuticles between which is the moulting fluid. A few hours after the isolation of the tissue, the epidermis of most parts of the gill begins to dissociate : the cells become rounded, separate away from the cuticle and from one another, and in due course form loose clumps in the lumen. The tissue isolated in the gill repairs cuts and tears in the gill wall with a tanned cuticle. The isolated tissue is competent to repair damage to the gill for several days after the pupal cuticle is shed by the adult. The tissue tolerates complete dehydration. In water, isolated tissue of gills previously dried for 70 days successfully repaired damage to the gills, even though when dry it had been heated to 103° C. for two hours or to 130° C. for 30 minutes. The larva and adult of *Taphrophila* are killed when they lose about 20 per cent. of their moisture content. But if they are dried rapidly, their epidermis tolerates complete dehydration for prolonged periods. The epidermis of many other insects shows a similar tolerance to dehydration. The spiracular gill of *Taphrophila* has a plastron that is not wetted at pressures below about 0·3 atm. above normal pressure, and is only wetted by surface active substances that reduce surface tension to about 25 dynes/cm.

TEA will be served in the Library before the meeting.

NOTICES.

Provision of refreshments after Ordinary Meetings.

Coffee and biscuits will be available in the Library after the meeting on payment of one shilling per person. Fellows intending to stay for these refreshments are asked to sign the list beside the Attendance Book before 5.30 p.m.

The Library will continue to be closed at the end of the meeting.

Telephone Number.

The telephone number of the Society's Rooms at 41, Queen's Gate has now been altered to **Knightsbridge 8361.**

Forthcoming Ordinary Meetings.

3rd July, 1957.

(1) **Professor O. W. Richards.**—Predacious insects on broom.
(2) **Mr. R. C. B. Hartland-Rowe.**—The biology of a tropical mayfly.

2nd October, 1957.

To be arranged.

PROCEEDINGS OF THE ORDINARY MEETING HELD ON 1ST MAY, 1957.

Mr. PAUL FREEMAN, Vice-President, in the Chair.

Present, 63 Fellows and 17 Visitors.

The minutes of the Ordinary Meeting held on 3rd April were confirmed and signed by the Vice-President.

The names of the following candidates for election were read for the first time: Dr. John Philip Glasgow; Mr. George Anderson Hugh McClelland, B.A.; Mr. Suvendu Kumar Majumder, M.Sc.; Mr. Nalkur Bhavani Shankar Rao; Mr. Michael Thomas Tanton; and Mr. Stanley Wood, B.Sc.

For the second time (taken as read): Mr. Jagdish Parshad Aggarwal, M.Sc.; Miss Jean Margaret Davies, B.Sc.; Mr. Benjamin A. Foote; Mr. Carroll B. Knowlton, Jr.; Mr. Stuart Edmund Neff; Mr. Raghava Rao Nyayapati; Mr. Norman Karl Sylvester, B.Sc.; and Mr. Michael James Tyler.

The Secretary read the names of the following newly elected Fellows of the Society: Mr. Brian Robert Baker, B.Sc., Brook House, 71A, Berkeley Avenue, Reading, Berks.; Mr. Sidney Herbert Blunt, 106, Bordesley Green, Birmingham, 9; Mr. Deb Kumar Choudhuri, M.Sc., 19, Cornwall Gardens, London, S.W.7; Mr. Michael Frederick Claridge, B.A., 117–121, Railway Terrace, Rugby, Warwickshire; Mr. Lionel Ray Cole, Hope Department, University Museum, Oxford; Dr. Giovanni De Lotto, Scott Agricultural Laboratories, P.O. Box 30028, Nairobi, Kenya; Mr. Rennie Friendship, B.Sc., 3, Ashville Avenue, Eaglescliffe, Stockton-on-Tees, Co. Durham; Mr. Peter Waller Hanney, B.Sc., 81, Catherine Street, Reading, Berks.; Mr. Leslie Hender, Westowe, Lydeard St. Lawrence, Taunton, Somerset; Mr. Nicholas David Jago, 1 Grove Vale, Walden Road, Chislehurst, Kent; Dr. W. J. Le Quesne, Millbury, Millshot Drive, Chequers Hill, Amersham, Bucks.; Mr. Albert George Long, M.Sc., The Green, Gavinton, Duns, Berwickshire; Mr. Graham Anthony Matthews, 19, Medina Avenue, Esher, Surrey; Mr. Francis Anthony Noble, 2, Newton Road, Sparkhill, Birmingham, 11; Mr. Ronald George Pearson, Clare College, Cambridge; Dr. J. Risbec, 26, Drayton Gardens, London, S.W.10; Mrs. Joy Opal Irene Spoczynska, 89, Harlestone Road, St. James', Northampton; and Mr. Richard Underwood, 27, West Street, Greaves, Lancaster.

Thanks were voted to donors of gifts to the Library since the last meeting.

Mr. B. R. Baker, Mr. P. Hanney, and Mr. A. Valletta signed the Obligation Book and were admitted Fellows of the Society.

The following papers, accepted for publication in the *Transactions*, were read in title:

"Taxonomy of some British Encyrtid parasites (Hymenoptera) of scale insects (Coccoidea)", by S. Mashhood Alam.

"The *Meligethes* of Japan (Coleoptera : Nitidulidae)", by A. M. Easton.

"Some aspects of the morphology and inter-relationships of extinct and recent Homoptera", by J. W. Evans.

"The biology of *Anthocoris nemorum* (L.) (Hemiptera : Heteroptera) in Scotland", by A. R. Hill.

"The British Taeniopterygidae (Plecoptera)", by H. B. N. Hynes.

"New and little-known species of Psychomyidae (Trichoptera) from the African mainland (south of the Mediterranean region)", by D. E. Kimmins. [Communicated by Dr. N. E. Hickin.]

"A review of the British glasshouse Thysanoptera", by G. D. Morison.

"The immature stages of some British Anthocoridae (Hemiptera: Heteroptera)", by W. A. Sands.

"Some new species of *Mesopsocus* (Psocoptera : Mesopsocidae) from Southern Africa", by C. N. Smithers.

"Further additions to the British aphid fauna", by H. L. G. Stroyan.

"Hitherto overlooked anatomical data concerning the genital structures in the Rhopalocera", by B. C. S. Warren.

Dr. J. L. Cloudsley-Thompson exhibited specimens of *Aëpus marinus* Stroem (living and preserved) and *Aëpophilus bonnairei* Sign. (preserved), and said that he had taken two specimens of *A. marinus* beneath adjacent rocks in the *Fucus* zone at Port Erin, Isle of Man, on 8th April. Intensive search in the same region the following day failed to disclose further specimens, but on 10th April Miss Joyce Gill found two more *Aëpus* and a nymph of the bug *Aëpophilus bonnairei*. According to L. C. Miall (1895, *The natural history of aquatic insects*, London) the body of *A. marinus* is covered with hairs which entangle air. On being submerged, however, no trace of a plastron or hair pile could be observed in his specimens. Furthermore the integument appeared to be waxy and hydraphobe so that, unless already wet, the insects tended to float helplessly on the surface film. Evidently under natural conditions they cannot allow themselves to become dry otherwise they would be swept away from their homes by the incoming tide. They do not appear to move much when submerged. *Aëpophilus* has only recently been recorded at Port Erin (Green, J., 1955, *Ent. mon. Mag.* **91** : 136).

Dr. W. H. Thorpe agreed that he had observed no trace of a plastron in *Aëpus*.

Dr. N. E. Hickin exhibited larvae of *Enoicyla pusilla* Burmeister. He said the genus *Enoicyla* is the only genus in the Trichoptera with terrestrial larvae and pupae. There are three species only; *pusilla* Burmeister is recorded from England and *reichenbachi* Kolenati and *costae* McLachlan are found in Europe. McLachlan and Fletcher collected larvae of *pusilla* from various localities near Worcester, not now known with certainty, but it does not appear to have been found in the British Isles since 1879.

Dr. Hickin continued that the larvae exhibited were collected on 22nd April, by his daughter and himself from Wyre Forest, Worcestershire, the first specimens being actually found inside the tents of their camp. They were present in large numbers and were about a quarter of a mile from the nearest water (Dowles Brook, a fast-running stream). The larvae exhibited were eating dead oak leaves.

A colour film, **Le monde sonore des sauterelles,** was shown by courtesy of the French Embassy Cultural Service; details of this film appeared on page 12.

The Vice-President said that Mr. W. B. Broughton had been responsible for obtaining the film. The film was then introduced by Mr. Broughton.

The discussion which followed was opened by Dr. E. C. Cherry, a visitor, who enquired whether the responses of grasshoppers to sounds containing transients was perhaps not to the transients as such but rather to the very high frequency components they contain. He asked if experiments had been done using "pure transients" produced by a piston loudspeaker. Mr. Broughton replied that this possibility had been considered, but that work on the auditory organs showed a lack of ability to discriminate frequency; he was at present engaged in experiments using "pure transients" *inter alia*, but so far with negative results. Dr.

P. T. Haskell pointed out that there was no frequency discrimination as such in orthopteroid tympanal organs but that the nervous response was related to the modulation pattern of the stimulating sound. He added that some physiologists, himself included, were not satisfied that the presence of transients was the essential feature of acoustic signals. Furthermore, the impression which he got from the film that grasshoppers were acoustically unselective was demonstrably incorrect in the case of certain Acrididae. Dr. W. Loher, a visitor, and one of the experimenters in the film, said he was far from generalizing for every species on this question of rhythm discrimination, but pointed out that in his experiments with the Acridid *Chorthippus brunneus* (Thunberg) he had been able to evoke phonoresponses with a great variety of artificial signals. Dr. Haskell agreed, but claimed that this was because the simple structure of the song of *brunneus* did not transmit much information on which the insect could base its discrimination. In grasshoppers with more complicated songs it became more and more difficult to attract them with artificial signals. Dr. Loher objected that at least four other acridids had normal songs which were comparable with that of *brunneus* in this alleged lack of rhythm-pattern (which does not necessarily imply simplicity of structure) ; moreover, practically all Acrididae investigated showed this feature in at least one type of song. Mr. Broughton confirmed that in fact the song of *Ch. brunneus* was not simple, but consisted of a complex assemblage of pulses.

Dr. van Emden asked whether in the phonokinesis experiments, the vibration of the insect might have been directly caused by the experimenter at the moment of pressing the key ; Dr. Loher replied that notwithstanding any such impression given by the film, more rigorous controlled experiments in the laboratory demonstrated this was not so.

Dr. B. P. Uvarov said that the makers of the film were to be congratulated on its technical excellence and on the patient research on which it was based, but it was marred by the remarks made with reference to possible control of locusts by acoustic methods. There was little or no basis for this in fact.

E. B. BRITTON, *Honorary Secretary.*

The next meeting will be held on 3rd July at 5.30 p.m.

ADDITIONS TO THE LIBRARY.

Presented.

Abbott, C. P. *Queen breeding for amateurs.* (1947) rev. ed. [A Bee Craft Book.] Sm. 8vo. Petts Wood. 1951. [The Author.]

Bohart, R. M., and Bechtel, R. C. The social wasps of California (Vespinae, Polistinae, Polybiinae). *Bull. Calif. Insect Surv.* **4** : 73–101. 1957. [University of California Press.]

Bridges, C. B., and Morgan, T. H. *The third chromosome group of mutant characters of* Drosophila melanogaster. 8vo. Washington. 1923. [Dr. E. A. Cockayne's Bequest.]

Goldschmidt, R. *Lymantria. Bibliogr. genet.* **11** : 1–186. 1934. [Dr. E. A. Cockayne's Bequest.]

Martin, J. C. A taxonomic revision of the Triaspidine braconid wasps of Nearctic America (Hymenoptera). *Publ. Dep. Agric. Can.* **965** : 1–157. 1956. [Department of Agriculture, Canada.]

Morgan, T. H., and others. The genetics of *Drosophila*. *Bibliogr. genet.* **2** : 1–262. 1925. [Dr. E. A. Cockayne's Bequest.]

Morgan, T. H., and others. Contributions to the genetics of *Drosophila melanogaster*. [*Publ. Carneg. Instn.* **278**.] 8vo. Washington. 1919. [Dr. E. A. Cockayne's Bequest.]

Schlottman, L. L., and Bonhag, P. F. Histology of the ovary of the adult mealworm *Tenebrio molitor* L. (Coleoptera, Tenebrionidae). *Univ. Calif. Publ. Ent.* **11** : 351–394. 1956. [University of California Press.]

Townes, H. Nearctic wasps of the subfamilies Pepsinae and Ceropalinae. *Bull. U.S. nat. Mus.* **209** : 1–286. 1957. [Smithsonian Institution.]

Zumpt, F. *Exploration du Parc National Albert, Mission G. F. de Witte.* (1933–35) Fasc. 87. *Calliphoridae* (*Diptera, Cyclorrhapha*) Pt. 1. *Calliphorini and Chrysomyiini.* 8vo. Brussels. 1956. [The Author.]

Purchased.

Eichler, W. *Federlinge.* [Die Neue Brehm-Bücherei 186.] Sm. 8vo. Wittenberg Lutherstadt. 1956.

Perrier, R., and others. *La Faune de la France en tableaux synoptiques illustrés. Fasc.* 2. *Arachnides et crustacés.* 8vo. Paris. 1954.

Segal, L. *New complete Russian-English* [*English-Russian*] *dictionary.* 8vo. London. 1953, 1954.

In addition, separates have been presented by the Smithsonian Institution; United States Department of Agriculture; Mr. K. J. Joseph; Mr. J. Muspratt; Dr. P. T. Haskell; Dr. J. G. Pendergrast; Anti-Locust Research Centre; Dr. L. Broadbent; Mr. V. Venkat Rao; Dr. J. F. D. Frazer; Mr. G. B. Wiggins; Mr. L. E. Couchman; Dr. J. L. Cloudsley-Thompson; Mr. J. A. Whellan; Dr. D. S. MacLagan; Mr. C. N. Hawkins; Commonwealth Institute of Entomology; Colonial Termite Research Unit; Dr. J. J. Steyn; Dr. M. Sellnick; American Entomological Society; Dr. A. N. Clements and Mrs. J. F. Perkins.